APPLICATION FORM

DEMAND RESPONSIVE
HVAC AND LIGHTING BUILDING SYSTEMS

This form must be filled out completely and signed by the applicant.

A. APPLICANT INFORMATION

Full Legal Name of Applicant/Organization:_____

Years in Business Under Current Name:_____ Year First Established:_____

Social Security or Federal Employers ID Number:_____

Authorized Representative:_____

Title:_____

Street Address:_____

City:_____ State:_____ Zip Code:_____

Phone:_____ Fax:_____

E-mail address:_____

Type of Organization(s) or Business(s) (check)

❒ Local Government	❒ Other Public Entity	❒ Non-Profit Organization
❒ Special District	❒ University or College	❒ Sole Proprietor
❒ General Partnership	❒ Limited Partnership	❒ Corporation
❒ Individual	❒ Limited Liability Company	

Other (specify):_____

Note: Certain entities, such as corporations or limited partnerships/limited liability companies, may be required to register and be in good standing with the California Secretary of State to be eligible to enter into a grant agreement with the California Energy Commission. If you are not registered with the California Secretary of State, we encourage you to contact their office at www.ss.ca.gov or (916) 653-6814 as soon as possible to avoid potential delays in beginning your project should you be awarded a grant.

B. PROJECT BUDGET AND FUNDING REQUEST

Estimated Total Project Cost: $_____

Grant Funding Requested (may not exceed total project cost): $_____

1. Estimated Demand Responsiveness Savings: _____kW
2. Estimated Permanent Peak Period Savings: _____kW
3. Total Project Savings (1+2) kW

Grant Cost/kW (= Grant request divided by demand savings): $_____/kW

C PROJECT DESCRIPTION

Include the following information in your one page project description:

- Strategies that will be used, including products and technologies that will be installed to reduce electric demand.
- Types of communication devices that will be used to receive and respond to curtailment signals
- List all buildings and equipment that will be affected by this project
- Any contract you will have with the Independent System Operator (ISO), or any other firm, that provides payments for anticipated load curtailments

D. PROJECT DETAILS FOR EVALUATION

All applications must include the information and/or answers to the questions asked below. The failure to answer any question or provide the data requested may result in the entire application being rejected or at least delayed.

1. PROJECT FEASIBILITY AND ECONOMIC VIABILITY

a) Prepare a brief summary (one or two paragraphs) of all of the equipment that will be installed during this project, and the anticipated economic, energy savings, or other benefits, that will be realized as a result.

b) If HVAC system demand will be curtailed, describe the anticipated indoor temperature, CO_2 level and ventilation rate per person during the curtailment.

c) List all key individuals, their qualifications and experience, who will be involved in completing this project.

d) How will the project benefit your organization? To what extent do you anticipate receiving payments for curtailments from either the ISO or the local utility that will make this project more economically viable?

e) Explain how you will finance the initial part or your share of the project cost.

- ❒ We will use our own internal funds.
- ❒ We are working with others who will arrange the financing. Specify who, the certainty of the financing, and when it will be available. _____

_____

_____ _____

❒ Other, specify:_____

Describe what systems will be used to initiate the emergency/price signal requesting load curtailments, how the signal will be received, who will be in charge of deciding how and when to respond to the signal, and how information about the actual load savings achieved will be communicated or sent to either the ISO or the local scheduling coordinator. Explain how will you reduce the demand on permanent basis during the summer peak periods and how it will benefit your organization.

2. LEVEL OF CERTAINTY IN DEMAND REDUCTION ESTIMATES

a) Does your firm plan to sign up for one or more demand responsiveness programs to receive curtailment requests? If so, what entity will provide curtailment request/signals to the building manager or operating system? Who is the primary building manager contact that will receive the signal requesting curtailment and what steps have you taken to make sure that any other relevant building personnel are notified?

b) Will the curtailment signal be received by phone, pager, wireless, or internet? Will the receipt of this signal be acknowledged automatically or manually by the building manager?

c) Once notified of a curtailment request, will the curtailment actions be taken automatically (e.g. by machines) or manually by building operators who must make manual adjustments to building systems? .

d) How and when do you plan to measure pre-curtailment and curtailed demand levels? Will this grant provide the funds to purchase the energy meter or display software to allow this to happen? Or are you counting on your local utility to provide access to the energy usage data and a software platform to make comparisons between building energy uses at different time intervals?

e) List all the assumptions made in calculating the demand reduction.

f) Provide a copy of your pilot test plan. Describe how you will measure the pre-curtailment and curtailed demand levels? What parameters will you monitor during the pilot test and for how long? How long the test will last? Describe the data you will collect and any analysis that will be included in the pilot test report.

g) Provide the building energy use data to support the peak demand saving calculations. Applications that do not include justification for the key assumptions used or an explanation of how these calculations were developed, will be rejected.

3. EFFECTIVE USE OF GRANT FUNDS

Explain why this grant is necessary to complete the project by May 15, 2002 and how the project will continue demand reduction after completion to September 30, 2004.

4. TIMELY COMPLETION OF PROJECT

a) Describe a schedule for the project listing all the tasks needed to complete the installation of the equipment and any anticipated testing/commissioning steps.
b) Prepare a schedule for the pilot test, including commissioning of the system prior to the test.
c) List all the individuals and their titles who will be available to implement this project.
d) What is the availability and the lead-time for the equipment to be installed? Please include any preliminary cost quotes received from vendors.

5. RELIABILITY OF LOAD IMPACT

a) Provide a plan to monitor indoor air quality and comfort level during the pilot test if some or all of the building HVAC systems will be turned off.
b) Provide a plan to re-commission, operate and maintain the demand reduction system

E. ATTACHMENTS

Note: If your project is selected for a grant award, the Work Statement and Budget**,** as presented in your application and revised in negotiations with Commission staff, if necessary, will become part of your grant agreement. This agreement is a legal document that lays out the terms and conditions of your grant award with the Commission. Grant recipients must submit electronic copies of their Work Statement and Budget for this purpose. To expedite the project, carefully draft these sections and follow the format in the samples included in this document.

ATTACHMENT 1. WORK STATEMENT

Provide a clear and understandable Work Statement describing the specific tasks to be conducted including key milestones, products (if any), and schedule for conducting this project. Prepare the Work Statement as a separate Attachment with the heading

"**Attachment 1. Work Statement**."

ATTACHMENT 2. BUDGET

Prepare the Budget, as a separate attachment to your application, with the heading "**Attachment 2. Budget**." See Budget Instructions and Sample Budget.

ATTACHMENT 3. CALCULATIONS OF PEAK ELECTRICITY DEMAND SAVINGS

- Include all relevant data that will allow an engineer to duplicate the demand savings estimate indicated. These calculations should at a minimum, include the following types of information:
  - A concise description of the existing building controls, lighting systems, processes, or HVAC systems to be affected by a decision to curtail or reduce load
  - Conditioned building area (sq. ft.)
  - Location of affected buildings and both metering and any systems control equipment
  - Condition and age of affected energy using equipment
  - Typical hours of operation of the affected equipment. (e.g. 18 hours of lighting or 24 hours of HVAC operation)
  - Number of existing lighting or HVAC zones in the building
  - Ratings of energy using equipment (wattage, nameplate, tonnage, voltage, etc.)
  - Measure-by-measure summary of the calculated demand savings associated with the project
  - Facilities physical description and occupancy schedules (including activities in building and hours of operation (particularly for lighting systems)
  - Copies of the utility bills for the last 12 months
  - Estimates of the plug, process, and other loads of the buildings in Watts/sq. ft. or floor
- Clearly indicate all assumptions and variables used in the analysis
- Describe the basis or rationale for each assumption and variable

Please see the "Required Information for Calculating Estimated Peak Electricity Demand Savings" on page 10 of this application.

ATTACHMENT 4. GOVERNING BODY RESOLUTION (Public entities only)

When the recipient is a county, city, district, or other local public body, the recipient must provide a signed resolution, order, or ordinance of the local governing body that by law has authority to enter into the grant agreement. This document must authorize the recipient to enter into the grant agreement and designate an authorized representative to execute all necessary documents to implement and carry out the purposes of the award. This document need not be submitted with the application but it must be submitted prior to any funds being disbursed.

Please see “Sample Governing Body Resolution” for a sample resolution that may be used as a guide or filled out and certified by the local agency.

F. APPLICANT CERTIFICATION

Complete the following statement of certification (with original signature).

I certify to the best of my knowledge that the information contained in this application and in the supplemental information is correct and complete. I authorize the California Energy Commission to make any necessary inquiries to verify the information I have presented.

Signature of Authorized Representative Date

Name (typed or printed):

Relationship to applicant organization:
(i.e. President, County Superintendent, General Partner)

Note: For public agencies, the Authorized Representative is the person designated in the Governing Body resolution, order, or ordinance of the local governing body which has the authority to enter into the funding agreement.

INSTRUCTIONS AND SAMPLE WORK STATEMENT
(For preparing Attachment 1)

TASK 1. NAME OF TASK

Describe the task to be performed and its expected completion date. If there are several activities that must be accomplished to complete the task, list them as subtasks. Number any subtasks as 1.1, 1.2, etc., to make it easier to report on tasks in your monthly reports, etc.

1.1 Describe the subtask to be performed. Include specific details of the work to be performed.

Completion Date:	List the date the subtask will be completed.
Product Description:	List products resulting from the task or subtask, if any.
Product Due Date:	List the date the product will be submitted to the Commission Project Manager.

NOTE: It is not necessary to have a product for each task or subtask. However, if the task results in information, a report, or other data of value to the Commission, it should

be listed as a product. The Commission Project Manager may add products to the Work Statement in preparing the grant agreement.

SAMPLE:

TASK 1. Install and commission a new high efficiency lighting system

1.1. *Company Name* will remove and dispose of old lighting system, piping, and wiring.
Completion date: January 15, 2002

1.2. *Company Name* will receive delivery of new lighting system and inspect and certify that all equipment is received in satisfactory condition.
Completion date: April 1, 2002

1.3. *Company Name* will install and commission new lighting system.
Completion date: May 1, 2002
Product Description: Commissioning report
Product Due Date: May 15, 2002

BUDGET INSTRUCTIONS AND SAMPLE BUDGET
(For preparing Attachment 2)

Provide a detailed budget of proposed expenditures. Funds must be used for projects described in the work statement. Please include all categories listed below, and only these categories in the following order. If your project has no budget in category, put "$0" in the budget column.

PERSONNEL: List job classification, hourly salary, number of hours to work on this project, and total cost. If employees are paid on a monthly versus hourly basis, provide monthly salary, percentage of time to be worked on this project, number of months to work on this project, and total cost.

FRINGE BENEFITS: Specify percentage of Salaries and Wages and total cost.

TRAVEL: List each trip (or category of trip), purpose of trip, itemization of costs, and cost per trip. Any trips that are not included in the grant budget will require prior written authorization from the Commission Project Manager. See the grant award Terms and Conditions at: www.energy.ca.gov/peakload/documents for allowable travel rates.

EQUIPMENT: Itemize with costs per item. This includes all equipment that will be directly purchased by the Recipient. "Equipment" means tangible non-expendable personal property having a useful life of more than one year and an acquisition cost of $5000 or more per unit.

SUPPLIES: Itemize with costs per item. This includes all supplies that will be directly purchased by the Recipient.

CONTRACTUAL: Specify the amount and purpose of each contract. This would include contracts for the purchase and installation of equipment, etc.

OTHER: List any other items that do not fall in any of the above categories.

INDIRECT: Indicate if indirect costs will be charged as a percentage of Personnel and Fringe Benefits or total direct charges. State the basis for the proposed indirect cost rates. Attach documentation of the calculations. The Commission Project Manager will review the indirect rate and may make adjustments, if necessary.

SAMPLE BUDGET

Personnel	Lee Ruth, Mechanical Engineer (30 hours @ $50/hr)	1,500
	Robert Church, Project Manager (50 hours @$100/hr)	5,000
	Total Salaries and Wages	6,500
Fringe Benefits	(__% of Personnel)	1,625
Travel	10 trips to project sites to monitor installation @ 31¢/mile @ approximately 20 miles per trip	62
Equipment	5 demand responsive high efficiency electronic building control systems $10,000 each	50,000
Supplies	Electrical wire	200
	3,000 electronic ballasts @ $25 each	75,000
	12,000 T-8 lamps @ $2 each	24,000
	Total Supplies	99,200
Contractual	Equipment installation contract (may include programming costs)	78,000
Other	None	0
	TOTAL DIRECT COSTS	235,387
Indirect	(__% of total direct costs)	4,854
	TOTAL	**$240,241**

REQUIRED INFORMATION FOR CALCULATING ESTIMATED PEAK ELECTRICITY DEMAND SAVINGS (For use in preparing Attachment 3)

Peak electricity demand savings must be calculated as the average hourly reduction in demand expected during the hours of 2 p.m. to 6 p.m. on non-holiday weekdays from June 1 through September 30. Separate calculation must be provided for the demand savings committed to be available in response to an emergency signal and the permanent energy savings to be achieved by the installation of these systems during peak time periods (2 p.m. to 6 p.m.) and on an annual basis.

The savings must be based on the actual load and actual running hours of the equipment. Savings based solely on the equipment ratings will not be accepted. Demand data from the utility bills cannot be used as the base line energy usage data. If the estimated peak demand savings are exaggerated in the calculations, the proposal will be rejected. Calculations of peak savings must take into account any variable loads on the relevant equipment. For example, for a pumping efficiency improvement, the peak electricity demand savings should be calculated using pump loads that are representative of typical operating conditions during the summer peak demand period, preferably based on hourly historical operating data. If the peak electricity demand savings will occur only during a portion of the period June 1 through September 30, then the savings must be reduced proportionally. The following formula can be used to cover these types of projects:

$$\sum_{i=1}^{n} (Kwh_{i_{before}} - Kwh_{i_{after}})/4n$$

Where

n = the number of non-holiday week days from June through September

$Kwh_{i_{before}}$ and $Kwh_{i_{after}}$ are the energy consumptions of the system before and after the project, for each hour between 2 p.m. and 6 p.m. for the four-month period.

It is up to the applicant to present a convincing case for how peak electricity demand savings should be estimated. If it is unclear whether your preferred method is sufficient, contact the program manager.

If it is not clear whether any of the above methods are appropriate for your project, contact the program manager, Ram Verma at (916) 654-8435, to verify the appropriate approach for estimating the peak demand impact.

Additional Requirements for Certain Types of Projects

Building Summary Information
Please provide the following information for all the buildings that will be affected by the project. If you are curtailing only lighting, you do not have to include the information for the HVAC system and vice versa.

BUILDING NAME AND ADDRESS		
DESCRIPTION	**UNITS**	**ESTIMATE**
CONDITIONED BUILDING AREA	**SQFT**	
LIGHTING LOAD	**KW**	
LIGHTING CIRCUITS	**NOS.**	
NUMBER AND TYPE OF CHILLERS		
TOTAL CHILLER CAPACITY	**TONS**	
CHILLER CONNECTED LOAD	**KW**	
PRIMARY CHILLED WATER PUMPS CONNECTED LOAD	**KW**	
SECONDARY CHILLED WATER PUMPS CONNECTED LOAD	**KW**	
CONDENSER WATER PUMPS CONNECTED LOAD	**KW**	
COOLING TOWERS CAPACITY	**TONS**	
COOLING TOWER FANS CONNECTED LOAD	**KW**	
AIR HANDLERS CONNECTED LOAD	**KW**	
PACKAGED A/C UNITS AND HEAT PUMPS CONNECTED LOAD (INCLUDING CONDENSING UNITS)	**KW**	
ESTIMATED PLUG LOAD	**W/SQFT**	
ESTIMATED PROCESS LOAD	**W/SQFT**	

Attachment 4

SAMPLE GOVERNING BODY RESOLUTION
(For public entities only)

Resolution of _____ for the
Demand Responsive HVAC and Lighting Building Systems Program

Resolution No. _____

Resolution of _____(*Name of Public Agency*)

WHEREAS, the California Energy Commission provides grants to finance energy efficiency projects that will reduce peak electricity demand or renewable generation to augment peak electricity supply;

NOW THEREFORE, BE IT RESOLVED, that (*governing body*) authorizes (*name of public agency*) to apply for funding from the California Energy Commission to (*description of project*).

BE IT ALSO RESOLVED, that if recommended for a funding award by the California Energy Commission, the (*governing body*) authorizes (*Name of Public Agency*) to accept a grant up to $_____.

BE IT FURTHER RESOLVED, that (*title of official)* is hereby authorized and empowered to execute in the name of (*Name of Public Agency*) all necessary documents to implement and carry out the purpose of this resolution, and to undertake all actions necessary to undertake and complete the energy efficiency project.

Passed, Approved and Adopted this _____ day of _____, 2001.

Governing Board Members:

_____ _____

_____ _____

_____ _____